SAVING ENERGY IN COMMERCIAL BUILDINGS

Energy Audit Data Collection Form

Site Data													
Building Name	Address	Building Square Footage (ft ²)	Age of Buildin (years)	ng	Date of L Major Renovati		Purpose of Building	Number of Floors	Hou	ly erational ers <i>(e.g., M-</i> -6, <i>Sa 10-4)</i>	Days of Use per Week	Name of Utility Company	Total Number of Occupants
Organizationa	al Information												
Name of				Name Contac						Position			
Organization								Phone Number					
Meters are r Bills are cor	g is leased. g is owned. ation receives monthly be ead regularly by on-site npared to monthly meter	staff. r readings on a	regular l	oasis.	_								
The building The building	Building Automation System or Energy Management Control System is in place and used to track utility data regularly. e building is sub-metered. e building has automated 15-minute interval or SMART meters.												
If the building When is the	ng is leased: lease up for renewal (da	nte/year)?								_			
How long do	v long does the lease contract last (years)?												

Building Data				
Floor Name or	Activity Type (e.g., laboratory, executive	Floor Square Footage or % of Building Area (ft² or %)	Number of	Daily Operational Hours (e.g., M-F 8-6, Sa 10-4)
Number	offices, reception, etc.)	of Building Area (ft² or %)	Occupants	(e.g., M-F 8-6, Sa 10-4)
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Electricity (kWh)	Electricity Cost (\$)	Electricity Rate (\$/kWh)	Natural Gas (MMBtu*)			Natural Gas R (\$/MMBtu)				Water Cost (\$)
Natural Gas Usage	(Btu)	Total Btu]	Energy Use Inte	nsity (Btu/ft²	²) To	otal Wate	er	Water	(gallons/ft²)
		Electricity (kWh) Electricity Cost (\$)	Electricity (kwn) Cost (\$) (\$/kWh)	Electricity (kWh) Cost (\$) (\$/kWh) (MMBtu*)	Electricity (kWh) Cost (\$) (\$/kWh) (MMBtu*) Co	Electricity (kwh) Cost (\$) (\$/kWh) (MMBtu*) Cost (\$)	Electricity (kwh)	Cost (\$)	Electricity (kw h) Cost (\$) (\$/kWh) (MMBtu*) Cost (\$) (\$/MMBtu) (Gallons)	Electricity (kwn) Cost (\$) (\$/kWh) (MMBtu*) Cost (\$) (\$/MMBtu) (Gallons)

Calculate the energy use intensity by converting electricity from kWh to Btu and natural gas from MMBtu into Btu (as shown below), then total these two numbers and divide by the square footage of the building for energy intensity.

•	Electricity Usage (Btu)	= TOTAL kWh x 3,412.14 Btu/kWh	=	Btu
•	Natural Gas Usage (Btu)	= TOTAL MMBtu x 1,000,000 Btu/MMBtu	=	Btu
•	Total Energy Use (Btu)	= Electricity Btu + Natural Gas Btu	=	Btu
•	Energy Use Intensity (Btu/ft²)	= Btu/ft ²	=	Btu/ft ²

Where another fuel type is being used, please explain where and why it is being used:	
Amount of the additional fuel type used per year (quantity and units):	

More information about identifying bulb types is available in the accompanying guidelines documents.

Lighting								
Floor Name or Number	Location Description (near window, internal office, hallway, etc.)	Lamp Type	Ballast Type	Wattage	Total Number of Lamps	Number of hours lights are left on each day	Total kWh per Day	How are lights controlled?

Heating, Ventilation, and	d Air Condition	oning Systems							
What type of HVAC system does the building have (e.g., constant volume, multi-zone, VAV, etc.)?	What fuel type does this system use?	How is the HVAC system controlled (e.g., manually, DDC system, etc.)?	What are the operational setpoints?	What type of chill water system does building have, wh relevant (e.g., rota screw chillers with cooling towers, etc.	the ere ry	How old is the chilled water system?	What is the capacity of the system?	What are the operational setpoints?	Do any of these systems have weath optimization sensor If so, which systems and what brand of sensor?
Who is responsible for manag	ing and trouble	shooting the cont	ral system?						
who is responsible for manag	ing and trouble	-shooting the cont	ioi system?						
Are there any recurring or ma	jor occupant co	omplaints about bei	ng too hot, too col	ld, etc.?					
What energy efficiency efforts	s have been coi	mpleted started or	nlanned?						
-		•							
Are any capital improvement	projects planne	ed? If so, what are t	hey and how will	they affect the energ	y use of	the building?			
Please select what is currentl	ly installed at 1	the building:							
Ground source heat pumps	Segregate	d recycling	Energy-efficien	at lighting	Othe	r: Please spec	ify		
Solar hot water		ed recycling	Lighting contro		Othe	1. 1 icase spec	ii y		
Solar PV panels (electric)	Compostin		Insulation	713					
Wind turbines	Anaerobic	_	Underfloor heat	tino					
Micro-hydro		e procurement	On-demand hot	_					
Geothermal		ficient windows		ized heating sensor					
Gray-water systems	Green/livi		Low-flush toile	_					
Efficient HVAC systems		harvesting	Waterless urina						
External shading	Porous par	_	Low-flow fauce						
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PLUG LOADS									
Equipment Type	Manufacturer	Model or Size	Total Number	Wattage	Hours of Use per Day	Days of Use per Year	Total kWh	How is Equipment Controlled?	Description, Observations, or Notes
Vending machine									
Computer									
Printer									
Computer Screen									
Refrigerator									

Please specify where you feel there is room for improvement either in efficiency measures or renewable energy technologies:

Please check off the information that is being provided to NREL:
Copy of utility bills Screen shot of EMCS or DDC control system Copies of previous energy audit reports Copies of action plans or capital improvement plans Copies of any M&V plans Copies of an O&M contract (if outsourced) Copies of nameplates from HVAC and chiller equipment

Building Envelope				
Building Element	Condition (Excellent, Good, Poor)	Туре	Observations	Possible Energy Saving Opportunities
Windows				
Doors				
Roof				
Walls				
Floors				

Operations and Management

Does the organization have an environmental policy?
Does the organization have an energy policy?
Does the organization have an environmental or energy manager?
Does the organization review these policies on an annual basis and establish reduction targets?
Do organizational stakeholders or shareholders value environmental and social responsibility?

Conversion Table

To convert from cubic feet (CCF) to million British thermal units (MMBtu), multiply the CCF by 0.1. To convert from therms of natural gas to Btu multiply the therms by 100,000. Other conversions are shown below:

Energy Content of Various Fuels	
1 kilowatt hour of electricity	3,412.14 Btu
1 cubic foot of natural gas	1,008 to 1,034 Btu
1 therm of natural gas	100,000 Btu
1 gallon of crude oil	138,095 Btu
1 barrel of crude oil	5,800,000 Btu
1 gallon of residual fuel oil	149,690 Btu
1 gallon of gasoline	125,000 Btu
1 gallon of diesel	129,500 Btu
1 gallon of ethanol	84,400 Btu
1 gallon of methanol	62,800 Btu
1 gallon of kerosene or light distillate oil	135,000 Btu
1 gallon of middle distillate or diesel fuel oil	138,690 Btu
1 gallon of liquefied petroleum gas (LPG)	95,475 Btu